

Remarks

In the present response, four claims (1, 23, 33, and 34) are amended. One independent claim (47) is added. No new matter is added with the amendments and new claim.

I. Claim Rejections: 35 USC § 112:

The Examiner rejected claims 34 and 35 under 35 USC § 112, second paragraph, as being indefinite since each claim recited “the flow control label name” with insufficient antecedent basis. Claims 34 and 35 are amended to cure this rejection.

II. Claim Rejections: 35 USC § 103(a):

Claims 1-5, 8, 11, 14, 17, 20, 22-27, 30, 33, 36, 39, 42, and 45 are rejected under 35 USC § 103(a) as being unpatentable over Detlefs in view of USPN 4,920,538 (Chan).

A. References Not Teach Claimed Elements

First, the Examiner admits that “Detlef does not expressly disclose the limitation wherein the converting step includes inserting flow control labels into the sub-equation of the logical equation, the flow control labels identifying conditional branch points in the specified computer program.” The Examiner states that “Detlefs does show that any sub-equation of the logical equation can be given a label (see page 29, section 6, paragraph 2, lines 1-2).” The Examiner further states, though, that Chan discloses this limitation (see column 1, lines 26-35 and 38-53).

Applicants respectfully disagree. Detlefs (at page 29, section 6, paragraph 2, lines 1-2) teaches a static checker that reports the location of specific error message. In other words, “the label encodes the source position and error type.” (Id.). Chan teaches a marker that “is computed **at runtime** and is matched with the stored marker to detect any wild branches.” (Emphasis added. Col. 1, lines 41-42). Claim 1 is amended to recite “a method of verifying with static checking.” As such, the combination does not teach a **static checking** method that includes flow control labels that identify conditional branch

points. By contrast, a combination of Detlefs and Chan would teach a dynamic checker that, at runtime, reports the location of specific error messages.

Second, the Examiner contends that Detlefs teaches a theorem prover with any of the flow control labels for conditional branch points of the program associated with the identified variable values. The Examiner cites Page 23, section 4, paragraph 1, lines 4-8. Applicants have scrutinized this section and find no such teaching. This section is reproduced below:

The condition is submitted to an automatic theorem-prover, just like in program verification, but unlike in program verification, we have no interest in the case where the theorem prover succeeds. Instead, the tool post-processes theorem-prover failures into meaningful error messages.

In short, this section plainly states that a condition is submitted to a theorem-prover. The program then processes failures into error messages. Detlefs later discusses that an exact location of these error messages is reported. (See page 29, section 6). This section, however, does not teach or suggest “flow control labels for conditional branch points of the program associated with the identified variable values.”

Third, the Examiner states that Detlefs teaches an error message that includes a **program trace** when the counter-example identifies one or more of the flow control labels. The Examiner cites Page 29, section 6, paragraph 2, lines 3-4 and 7-9. This section is reproduced below:

If the prover finds a counterexample, it emits the set of labels of relevant subformulas that are false in the counterexample. The name of the label encodes the source position and error type. This makes it straightforward to translate failed proofs into specific error messages.

This section does not teach or suggest the recitations of amended claim 1: “**program trace that identifies a path through the computer program** when the counter-example identifies one or more of the flow control labels.”

B. Improper Combination

Claims 1 and 23 are amended to recite that the invention is directed toward a static checker. This amendment traverses the combination of Detlef and Chan under 35 USC § 103.

No motivation, teaching, or suggestion exists for combining Detlef and Chan to teach Applicants' claimed invention since these references are directed to completely different error checkers. Applicants respectfully ask the Examiner to distinctly cite this motivation, teaching, or suggestion as required in MPEP 706.02(j).

The Detlef reference is directed toward an "Extended **Static Checker** (called ESC), a programming tool that catches errors at compile time that ordinarily are not caught until runtime." (Emphasis Added. Page 2, lines 5-6). By contrast, Chan is directed toward a **dynamic checker**: "Microcode sequence errors are determined at the completion of each microprogram node execution by comparing a path identifier **generated at runtime** with the global label stored earlier." (Abstract. Emphasis added. See also specification for details on runtime execution).

Static checkers determine errors at compile time without simulating or executing the program. By contrast, dynamic checkers (or runtime checkers) execute or simulate the execution of the computer program to determine an error. Since static and dynamic checkers use widely different methods for checking for errors, one skilled in the art would not be motivated to modify Detlef with Chan to arrive at the claimed invention. In fact, Applicants note in their Background a number of distinct disadvantages with dynamic checkers. (For list of disadvantages, see paragraph [0008] of US 2002/0046393).

C. Conclusion Section II:

For at least the foregoing reasons, claim 1 is patentable in view of Detlefs and Chan. Applicants respectfully request withdrawal of the rejection of claim 1.

Claims 2-4, 8, 11, 14, 17, 20, 22 depend from claim 1, which is believed to be allowable. Therefore, these claims are also believed to be allowable for at least the same reasons as claim 1. Withdrawal of the rejection of claims 2-4, 8, 11, 14, 17, 20, 22 is respectfully requested.

Further, independent claim 23 is patentable in view of Detlefs and Chan for at least the reasons indicated above for independent claim 1.

Claims 24-27, 30, 33, 36, 39, 42, and 45 depend from claim 23, which is believed to be allowable. Therefore, these claims are also believed to be allowable for at least the same reasons as claim 23. Withdrawal of the rejection of claims 24-27, 30, 33, 36, 39, 42, and 45 is respectfully requested.

III. Claim Rejections: 35 USC § 103(a):

Claims 6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41, 43, 44, and 46 are rejected under 35 USC § 103(a) as being unpatentable over Detlefs in view of USPN 4,920,538 (Chan) as applied to claims 1-5, 8, 11, 14, 17, 20, 22-27, 30, 33, 36, 39, 42, and 45 above, and further in view of USPN 5, 854,924 to Rickel et al. (hereinafter Rickel).

References Not Teach Claimed Elements

Applicant acknowledges that Rickel is generally directed to a debugging tool for debugging a binary program file. (See Abstract). Rickel, however, does not cure the deficiencies of Detlefs and Chan. As such, Applicants reiterate the arguments above with respect to independent claims 1 and 23 and all corresponding dependent claims as articulated in Section II.

IV. New Independent Claim 47:

Independent claim 47 contains numerous recitations that are not shown in the art of record. For example, claim 47 positively recites numerous flow control labels selected from a group. Further, claim 47 recites “a program trace **that identifies a path through the computer program** when the counter-example identifies one or more of the flow control labels.” (Emphasis added).

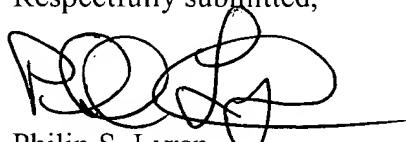
CONCLUSION

In view of the above, Applicant believes claims 1-47 are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. (281) 514-8236, Facsimile No. (281) 514-8332. In addition, all correspondence should continue to be directed to the following address:

Hewlett-Packard Company
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Respectfully submitted,



Philip S. Lyren
Reg. No. 40,709
Ph: 281-514-8236

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 19th day of February, 2004.

By Be Henry
Name: Be Henry